

ABSTRACT

The discharge lamp lighting apparatus has a step-up/step-down converter 3 comprising a transformer 3a, a first switching element 3b serially connected to the transformer 3a on a side of a commercial ac power source 1, and a first diode 3c and a first capacitor 3d connected to the transformer 3a on the load side; zero-cross detection means 10 for detecting the zero-cross of voltage of the commercial ac power source 1; a supplemental power circuit 4 comprising a second diode 4a connected to the junction between the transformer 3a and the first switching element 3b, a second capacitor 4c for charging electric power stored in the coil of the transformer 3a on a side of the commercial ac power source 1 via the second diode 4a, and a second switching element 4b, a third diode 4f and an inductance 4e through which the energy charged in the second capacitor 4c is supplied to the discharge lamp 8; and a control circuit 9 that operates the second switching element 4b in the supplemental power means 4 based on the output from the voltage zero-cross detection means 10 during a predetermined period of time around the zero-cross.